217/782-2113

FEDERALLY ENFORCEABLE OPERATING PERMIT

PERMITTEE

Adkins Energy, LLC
Attn: Todd Block
4350 West Galena Road
P.O. Box 227
Lena, Illinois 61048

Application No.: 0306005
Applicant's Designation:
Subject: Ethanol Plant
Date Issued:
Location: 4350 West Galena Road, Lena

I.D. No.: 177802AAA
Date Received: June 24, 2003

Expiration Date: See Condition 1.1(b)

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of a fuel ethanol plant with a nominal design capacity of 116,435 gallons/day denatured ethanol, including the units listed in Attachment A and other ancillary operations, as described in the above-referenced application. This Permit is subject to the following conditions and the standard conditions attached hereto.

Section 1: Plant-Wide Conditions

1.1 Introduction

a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds, e.g., 100 tons/year each of nitrogen oxides (NOx), carbon monoxide (CO), volatile organic material (VOM) and particulate matter (PM). Prior to issuance, a draft of this permit underwent public notice and a public comment period.

b. This permit will expire 180 days after the completion of the shakedown period for the feed dryer authorized by Construction Permit 03040053.

1.2 Plant-wide operating limitations

a. The amount of grain processed at this plant shall not exceed 42,000 tons/month and 420,000 tons/year.

b. Ethanol production from the plant, determined as denatured ethanol shipped from the loading racks, shall not exceed 3.61 million gallons/month and 42.5 million gallons/year.

c. Annual natural gas usage by the plant shall not exceed 2142 million cubic foot.

d. Compliance with these annual limitations and other annual limitations of this permit shall be determined from a running total of 12 months of data, unless otherwise specified in the particular condition.

1.3 Plant-wide Emission Limitations

a. Emissions from the plant shall not exceed the limitations in Table I. For purposes of determining compliance with these limitations, the procedures in the unit-specific conditions of this permit shall be followed unless other credible evidence provides a more accurate estimate of emissions.

i. The limitations in Table I-A are applicable beginning in the month that feed dryer first resumes operation.

ii. The limitations in Table I-B are applicable beginning the first complete calendar month after this permit is issued until the month that a feed dryer next operates at the plant.

iii. During the first year (12 months) following effectiveness of emission limitations, emission units shall comply with pro-rated limits developed from Table I-A or I-B, as applicable. In particular, for the first month in which an annual limit is effective, an emission unit shall comply with a pro-rated limit that is 1/12 of the annual limit. At the end of the second month, the unit shall comply with a limit that is 2/12 of the annual limit, and so forth.

c. i. This permit is issued based on the source not being a major source for Hazardous Air Pollutants (HAP), so that this source is not subject to the requirements of Section 112(g) of the Clean Air Act.

ii. If not otherwise specified for a particular emission unit, the emissions of HAPs, other than acetaldehyde, shall not exceed the following limits, which are expressed as a percentage of the VOM limitations:

Individual HAP: 10.0 percent of VOM limit
Aggregate HAPs: 15.0 percent of VOM limit.

Note: Refer to Tables I-A and I-B for limitations for acetaldehyde emissions.

d. The emission limitations in this permit supersede limitations established for the plant in Construction Permit 97070043.

1.4 Regulations of General Applicability

Emission units at this source are subject to the following regulations of general applicability:

a. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 25 miles per hour, pursuant to 35 IAC 212.301 and 212.314.

b. No person shall cause or allow the emission of smoke or other particulate matter with an opacity greater than 30 percent into the atmosphere from any emission unit, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) or 212.124.

1.5 Good Air Pollution Control Practice

The Permittee shall operate and maintain the emission units at this plant, including associated air pollution control equipment, in a manner consistent with good air pollution control practice, as follows:

a. At all times, including periods of startup, shutdown, malfunction or breakdown, operate as practicable to minimize emissions.

b. Conduct routine inspection and perform appropriate maintenance and repairs to facilitate proper functioning of equipment and minimize or prevent malfunctions and breakdowns.

c. Install, calibrating and maintaining required instrumentation according to the supplier’s specifications or as otherwise necessary to assure reliable operation of such devices.

1.6 Retention and Availability of Records

a. All records, logs, or written procedures required by this permit shall be retained at readily accessible location at the source for at least three years from the date of entry and shall be available for inspection by the Illinois EPA upon request. Any records retained in electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.

1.7 Plant-Wide Reporting

a. The Permittee shall submit Quarterly Compliance Reports as specified in the unit specific conditions of this permit and Condition 3.5(b).

b. i. The Permittee shall submit an Annual Emission Report in accordance with 35 IAC Part 254.

ii. With its Annual Emission Report the Permittee shall report:

A. The annual operating hours of the distillation process, fermentation process and the feed drying system, and the percentage of these operating hours, if any, that these units operated out of compliance.

B Significant deficiencies in the condition of emission units and control systems as related to emissions identified during the detailed annual inspection of equipment.

c. i. The Permittee shall notify the Illinois EPA within 30 days of any deviation from the operating limitations in Condition 1.2 or the annual emission limitations set for the plant. Any such notification shall include the information specified in Condition 3.2.

ii. Not withstanding the above or provisions in the Unit Specific Conditions of this permit for reporting deviations, if deviation will occur from required maintenance, repair or other activity that can be scheduled in advance, the Permittee shall also notify the Illinois EPA prior to undertaking such activity, if it is feasible to do so. Such notification shall be submitted at least 5 days in advance unless the activity is scheduled less than 5 days in advance. Such notification shall be followed by such other notification or reporting as required for the deviations.

1.8 Submission of Reports

a. i. All notifications and reports required by this permit shall be sent to the Illinois EPA at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Enforcement Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

ii. A copy of each report or notification shall also be sent directly to the Illinois EPA's regional office at the following address:

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

iii. A copy of each report or notification shall also be posted on a Internet website maintained by the Permittee for access by the general public. For this purpose, the Permittee may edit such material to remove information that has been claimed as trade secret or confidential in the material submitted to the Illinois EPA.

b. When this permit requires immediate notification such notification shall be provided by telephone and followed by facsimile or e-mail transmittal of a narrative report.

1.9 Other Requirements

a. This permit does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.

b. In particular, this permit does not excuse the Permittee from the obligation to undertake further actions at the source as may be needed to eliminate air pollution, including nuisance due to odors, such as raising the height of stacks, using alternative scrubbant materials, installing back-up control systems or altering process conditions in emission units.

Section 2: Unit Specific Conditions

2.1 Boilers

2.1.1 Description

Two natural gas fired boilers generate the steam used to supply the heat for the ethanol production process.

2.1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Equipment	Description	Emission Control Equipment
EU013	Boiler 1	Natural Gas Fired Boiler (60 Million Btu/Hr)	Low-NO_x burners
EU014	Boiler 2	Natural Gas Fired Boiler (60 Million Btu/Hr)	Low-NO_x burners

2.1.3 Applicability Provisions and Applicable Regulations

a. The boilers are subject to the federal Standards of Performance (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc and related provisions in Subpart A. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

b. The emission of carbon monoxide (CO) from each boiler shall not exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].

c. The emission of smoke or other particulate matter from each boiler shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.123(b) and 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity readings in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

d. At all times, the Permittee shall maintain and operate the boilers, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).

2.1.4 Non-Applicability of Regulations of Concern

The sulfur dioxide and particulate matter emission standards of the NSPS, 40 CFR 60 Subpart Dc, are not applicable to the affected boilers because the boilers only fire natural gas.

2.1.5 Operational and Production Limits and Work Practices

a. Natural gas shall be the only fuel fired in the affected boilers.

b. The rated firing rate of each boiler shall not exceed 60 million Btu/hour.

c. Each boiler shall be equipped, operated, and maintained with low NO_x combustors for natural gas firing.

2.1.6 Emission Limitations

a. The low-NO_x burners shall be designed and operated to emit no more than 0.05 lb NO_x per million Btu heat input.

b. Emissions of the affected boilers shall not exceed the following limits. These limits are based on information in the application including the maximum firing rate (60 million Btu/hr), the emission factors based on the manufacturer's test data for NO_x and CO emission and standard emission factor for other pollutants and continuous operation:

	Emission Rate Each Boiler		Combined Emission
Pollutant	Lb/hr	Tons/yr	Tons/yr
NO_x	2.92	12.78	25.57
CO	1.75	7.67	15.35
VOM	0.17	0.73	1.46
PM	0.84	3.68	7.36
SO_2	0.04	0.16	0.32

2.1.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.1.8 Monitoring Requirements

None

2.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items:

a. Fuel usage for the boilers, ft^3/day and ft^3/yr;

b. Monthly and annual NO_x, CO, PM, SO_2, and VOM emissions from the each boiler based on fuel consumption and other

operating data, and appropriate emission factors, with supporting calculations.

2.1.10 Reporting Requirements

a. The Permittee shall fulfill all applicable notification and reporting requirements of the NSPS for the boilers.

b. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected boilers as follows. These reports shall include the information specified in Condition 3.2.

i. Excess opacity that lasts more than 24 minutes (four 6-minute averaging periods) shall be immediately reported to the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported in the quarterly compliance report.

2.1.11 Compliance Procedures

Compliance with the emission limits of Condition 2.1.6 shall be based on the records required by Condition 2.1.9 and appropriate emissions factors.

2.2 Gas Turbine

2.2.1 Description

One gas turbine with heat recovery steam generator supplies both electricity and steam for the ethanol process. Emissions of NO_x from the turbine are controlled by the low-NO_x burners installed in the turbine. The heat recovery steam generator is not equipped with supplemental burner.

2.2.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Equipment	Description	Emission Control Equipment
EU015	Turbine	Gas Turbine (56.5 Million Btu/Hr)	Low-NO_x Burners

2.2.3 Applicability Provisions and Applicable Regulations

a. The turbine is subject to the NSPS for Stationary Gas Turbines, 40 CFR 60, Subpart GG, and related provisions in Subpart A.

   i. Emissions from the turbine shall comply with the NSPS standard for NO_x at 40 CFR 60.332(a)(2).

   ii. The turbine shall comply with the NSPS standard for SO_2 at 40 CFR 60.333(b), i.e., the sulfur content of the fuel burned in the turbine shall not contain more than 0.8 percent by weight sulfur.

b. The emission of smoke or other particulate matter from turbine shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.123(b) and 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity readings in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

c. At all times, the Permittee shall maintain and operate the turbine, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).

2.2.4 Non-Applicability of Regulations of Concern

None

2.2.5 Operational and Production Limits and Work Practices

a. Natural gas shall be the only fuel fired in the turbine.

b. The rated firing rate of the turbine at 50 °F shall not exceed 56.5 million Btu/hour.

2.2.6 Emission Limitations

a. Emissions from the turbine shall not exceed the following limits. These limits are based on the maximum firing rate (56.5 million Btu/hour), the emission factors based on the stack test data for NO_x and CO emission and standard emission factor for other pollutants and continuous operation:

Pollutant	Emission Factor (Lb/Million ft^3)	Emission Rate	
		(Lb/Hr)	(Tons/Yr)
NO_x	104.42	5.90	25.84
CO	121.42	6.86	30.05
VOM	----	0.20	0.86
PM	----	0.11	0.47
SO_2	----	0.18	0.78

2.2.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.2.8 Monitoring Requirements

The Permittee shall monitor sulfur content of the fuel being fired in the gas turbine in accordance with 40 CFR 60.334(b) and 60.335(b) or the provisions of a custom or alternative monitoring program approved by USEPA pursuant to 40 CFR 60.13(i). The analysis may be performed by the Permittee, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency [40 CFR 60.335(c)]

2.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items:

a. Fuel usage for the gas turbine, ft^3/mo and ft^3/yr;

b. The sulfur content of the fuel used in the gas turbine as measured pursuant to Condition 2.2.8.

c. An operating log and an inspection and maintenance log for the turbine. This addition to other information, this log shall identify any physical changes made to the burners in the turbine and operational changes in the computerized combustion program.

d. Monthly and annual NO_x, CO, PM, SO_2, and VOM emissions from the gas turbine based on fuel consumption and other operating data, and appropriate emission factors, with supporting calculations.

2.2.10 Reporting Requirements

a. The Permittee shall fulfill all applicable notification and reporting requirements of the NSPS for the turbine.

b. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the turbine as follows. These reports shall include the information specified in Condition 3.2.

i. Excess opacity that lasts more than 24 minutes (four 6-minute averaging periods) shall be immediately reported to the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported in the quarterly compliance report.

2.2.11 Compliance Procedures

Compliance with the emission limits of Condition 2.2.6 shall be based on the records required by Condition 2.2.9 and appropriate emissions factors developed from testing of the turbine (NO_x and CO) or standard emission factors.

2.3 Grain Receiving, Handling, Milling, and Processing

2.3.1 Description

The plant includes a grain elevator at which corn is received by truck and stored in bins prior to processing. The initial processing of the corn occurs in the elevator, when the corn is screened or cleaned to remove cobs and other foreign matter. The cleaned grain is then transferred to a "day bin", ground in a hammermill and conveyed to the slurry tank for enzymatic processing.

2.3.2 List of Emission Units and Pollution Control Equipment

Corn Receiving	Grain receiving dump pit	----
Grain Handling and Processing	Grain Dump Pit Discharge Drag Conveyor	Spot Filter Baghouse (FX-150)
	Grain Cleaning Scalper	Spot Filter Baghouse (FX-153)
	Scalper Discharge Bucket Elevator	Spot Filter Baghouse (FX-157)
	Grind Bin Feed Bucket Elevator	Spot Filter Baghouse (FX-147)
Grain Milling	Hammermill Discharge Screw Conveyors	Spot Filter Baghouse (FX-195)
	Hammermill Discharge Screw Conveyors	Spot Filter Baghouse (FX-190)

2.3.3 Applicability Provisions and Applicable Regulations

a. The "affected operations" for the purpose of these unit-specific conditions, are the grain handling operation described in Conditions 2.3.1 and 2.3.2.

b. The affected operations are subject to 35 IAC 212, Subpart S: Agriculture. The Permittee shall comply with all applicable requirements of Subpart S. [See Conditions 2.3.5(a) and (b)]

2.3.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected operations not being subject to 35 IAC 212.321, because the affected operations are subject to 35 IAC 212, Subpart S [35 IAC 212.461(a)].

b. This permit is issued based on the affected operations not being subject to 40 CFR 60, Subpart DD: Standards of Performance for Grain Elevators, because the source's total permanent grain storage capacity will not exceed the applicability threshold of the NSPS (threshold of 1,000,000 bushels permanent storage capacity).

2.3.5 Operational Limits and Control Requirements

a. Housekeeping Practices. The Permittee shall implement and use the following housekeeping practices for affected operation, pursuant to 35 IAC 212.461(b):

i. Air pollution control devices shall be checked daily and cleaned as necessary to insure proper operation.

ii. Cleaning and Maintenance.

A. Floors shall be kept swept and cleaned from boot pit to cupola floor. Roof or bin decks and other exposed flat surfaces shall be kept clean of grain and dust that would tend to rot or become airborne.

B. Cleaning shall be handled in such a manner as not to permit dust to escape to the atmosphere.

C. The yard and surrounding open area, including but not limited to ditches and curbs, shall be cleaned to prevent the accumulation of rotting grain.

iii. Dump Pit.

A. Aspiration equipment shall be maintained and operated.

B. Dust control devices shall be maintained and operated.

iv. Property. The yard and driveway of any source shall be asphalted, oiled or equivalently treated to control dust.

v. Housekeeping Check List. A written Housekeeping Check List for the grain handling operation, developed and maintained by the Permittee, shall be completed by the manager of the operation on at least a monthly basis and copies maintained on the premises for inspection by the Illinois EPA.

b. Individual grain handling operations shall comply with applicable requirements of 35 IAC 212.462 (see below), if a certified investigation performed by the Illinois EPA determines that such operation is causing or tending to

cause air pollution. [Section 9 of the Environmental Protection Act]

i. Cleaning and Separating Operations. [35 IAC 212.462(a)]

A. Particulate matter generated during cleaning and separating operations shall be captured to the extent necessary to prevent visible particulate matter emissions directly into the atmosphere.

B. Air contaminants collected from cleaning and separating operations shall be conveyed through air pollution control equipment, which has a rated, and actual particulate removal efficiency of not less than 90 percent by weight prior to release into the atmosphere.

ii. Dump-Pit Areas. [35 IAC 212.462(b)]

A. Induced draft shall be applied to major dump pits and their associated equipment (including, but not limited to, boots, hoppers and legs) to such an extent that a minimum face velocity is maintained, at the effective grate surface, sufficient to contain particulate emissions generated in unloading operations. The minimum face velocity at the effective grate surface shall be at least 200 feet per minute.

B. The induced draft air stream shall be confined and conveyed through air pollution control equipment which has an overall rated and actual particulate collection efficiency of not less than 90 percent by weight;

C. Means or devices (including, but not limited to, wind deflectors) shall be employed to prevent a wind velocity in excess of 50 percent of the induced draft face velocity at the pit; provided, however, that such means or devices do not have to achieve the same degree of prevention when the ambient air wind exceeds 25 mph.

iii. Internal Transferring Area. [35 IAC 212.462(c)]

A. Internal transferring area shall be enclosed to the extent necessary to prohibit visible

particulate matter emissions directly into the atmosphere.

B. Air contaminants collected from internal transfer operations shall be conveyed through air pollution control equipment which has a rated and actual particulate removal efficiency of not less than 90 percent by weight prior to release into the atmosphere.

c. The Permittee shall operate and maintain air pollution control equipment in a manner that assures that applicable requirements are met. The actions taken by the Permittee to meet this requirement shall include at least the following:

i. Written operating procedures shall be maintained and updated describing normal process and equipment operating parameters; monitoring or instrumentation for measuring control equipment operating parameters, if any; and control equipment inspection and maintenance practices. With respect to control equipment maintenance practices, the operating procedures may incorporate the manufactures recommended operating instructions, if a copy of these instructions is attached to the procedures.

ii. Visual inspections of air pollution control equipment shall be conducted on a regular schedule. These inspections shall include a detailed inspection of the performance and condition of control equipment at least once per year.

2.3.6 Emission Limitations

a. Fabric filters (baghouses) on affected processes shall comply with an emission limit of 0.01 grain per standard cubic foot (gr/scf).

b. The affected processes shall be operated so that opacity of any fugitive emission, as determined leaving any building or enclosure, from:

i. Any individual truck unloading station shall not exhibit greater than 5 percent opacity.

ii. Any grain handling operation shall not exhibit greater than 0 percent opacity.

c. i. Particulate matter emissions from affected processes shall not exceed the following limits. These limits are based on information provided in the application.

Process	Emission Factor (gr/scf)	Emissions (Lb/Hr)	(T/Yr)
Grain Receiving and Handling	0.01	0.34	1.49
Grain Cleaning and Hammermills	0.01	0.69	3.02
		Total:	4.51

ii. The above limits do not account for uncaptured emissions from the receiving and handling of grain, which shall not exceed 8.82 tons/year.

2.3.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.3.8 Monitoring Requirements

None

2.3.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected operations:

a. The permanent grain storage capacity of the plant, with supporting documentation, which record shall be updated if the permanent grain storage capacity of the plant changes.

b. Records related to grain throughput, on a monthly basis:

i. Grain received (tons/month).

ii. Grain in storage (tons).

iii. Grain processed, based on amount received adjusted for change in amount stored (tons/month).

iv. Grain processed (tons/year).

c. The differential pressure of the grain handling system baghouses shall be maintained at levels that are consistent with manufacturers recommended levels or at which emission testing demonstrated compliance with applicable requirements at least once per operating day.

d. Inspections, other equipment observations, preventative maintenance, maintenance activities other than preventative maintenance, and repair of air pollution control equipment which includes: date, duration, nature, and description of observation or action.

e. All other data used or relied upon to determine the PM emissions of process emission units including grain handling operations.

f. Records of PM emissions from affected operations (tons/month and tons/year) based on appropriate emission factors and operating data, with supporting calculations.

2.3.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected operations as follows. These notifications shall include the information specified by Condition 3.5.

i. Excess opacity that lasts more than 24 minutes (four 6-minute averaging periods) shall be immediately reported to the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.3.11 Compliance Procedures

Compliance with the emission limits of Condition 2.3.6 shall be based on the records required by Condition 2.3.9, emission factors published by USEPA for uncontrolled operations and the manufacturer guaranteed emissions rates for air pollution control equipment for controlled operation.

2.4 Fermentation

2.4.1 Description

Ethanol is produced by fermentation of the starch in corn. Ground corn is prepared for fermentation by converting it to "mash", by the addition of water and enzymes in a series of liquefaction and saccharification tanks that with heating, break the ground corn into fine slurry. In the fermentation tanks, yeast is added to the mash to begin the batch fermentation process.

The CO_2-rich gas generated by the fermentation tanks is routed through a scrubber to recover ethanol and other organic compounds in the exhaust. The fermentation scrubber is also referred to as the "CO_2 scrubber", as it scrubs the CO_2 stream from the fermentation tanks. The wastewater generated from the scrubbing process is routed back to the fermentation process for reuse. The exhausts from other significant units are vented to the distillation scrubber, which is also referred to as the "process scrubber."

2.4.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
EU003	Slurry Tank	Distillation Scrubber (CE003)
EU004	In-line Cooking System	
EU005	Flash Tank	Distillation Scrubber (CE003)
EU006	Yeast Tank	Distillation Scrubber (CE003)
EU007	Liquefaction Tanks	
EU008	Fermentation Tanks	Fermentation Scrubber (CE002)
EU009	Beer Well	Fermentation Scrubber (CE002)

2.4.3 Applicability Provisions and Applicable Regulations

a. An "affected process" for the purpose of these unit specific conditions is an emission unit described in Conditions 2.4.1 and 2.4.2.

b. Affected process emission units are subject to 35 IAC 212.321, which provide that:

> No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission

of particulate matter from all other similar process emission units … at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).

2.4.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the fermentation operations not being subject to the NSPS for VOC Emissions from SOCMI Reactor Process, 40 CFR 60 Subpart RRR, because the fermentation tanks involve biological reaction and operate as batch processes.

b. For the affected processes, this permit does not address the applicability of 35 IAC 215.301 because the VOM emissions of the processes are required to be controlled such that organic material emissions are less than 8.0 lb/hr. (Refer to Condition 2.4.6(a))

2.4.5 Operational and Production Limits and Work Practices

a. i. The key operating parameter of the scrubber for the affected processes shall be maintained at levels that are consistent with levels at which emission testing demonstrated compliance with applicable requirements, including the following:

A. Minimum scrubber water flow rate: 65 gal/min, hourly average.

B. Maximum scrubber water outlet temperature: 96°F, hourly average.

C. Maximum scrubber exhaust gas outlet temperature: 82°F, hourly average.

ii. If the differential pressure across the scrubber is outside of the normal operating range (either below 4 or above 18 inches of water column) for a period of 4 hours, the Permittee shall inspect the scrubber with 24 hours and initiate appropriate corrective action to restore the pressure drop of the scrubber to the normal range.

iii. The Permittee shall operate and maintain the scrubber in accordance with written procedures developed and maintained by the Permittee.

b. i. If emission testing of the affected process shows compliance with requirements for VOM by less than a 20 percent (e.g., if scrubber efficiency governs, scrubber control efficiency is only in

the range of 96 percent) the Permittee shall implement a Control Improvement Program (Program) for the affected process with the objective of achieving compliance by a margin of at least 20 percent.

ii. The Permittee shall submit a copy of the program to the Illinois EPA for its review and comments within 30 days after receiving test results that triggers this requirement for a Control Improvement Program (Program).

iii. A. If the emission testing demonstrated that the compliance margin was between 10 and 20 percent, the Program shall be completed in one year.

B. If the emission testing demonstrated the compliance margin was less than 10 percent, the Program shall be completed in six months.

C. Following completion of the Program, the Permittee shall again test VOM emissions from the affected process.

2.4.6 Emission Limitations

a. The VOM emissions from the affected processes that are to be controlled shall be controlled by at least 95 % weight percent or to a concentration of no more than 20 ppmv, whichever is less stringent.

b. i. Emissions of VOM from the affected processes that are to be controlled shall not exceed 9.25 pounds/hour and 40.5 tons/year.

ii. This permit is issued based on negligible PM emissions from the affected process emission units. For this purpose, PM emissions from these units, in total, shall not exceed 0.1 lb/hr and 0.44 tons/year.

c. i. The acetaldehyde emissions of the affected process shall not exceed 0.72 lb/hr and 3.16 tons/yr.

ii. The emissions of individual HAPs, other than acetaldehyde, from the affected process shall not exceed 0.048 lb/hr and 0.21 tons/yr.

iii. The emissions of total HAPs, other than acetaldehyde, from the affected process shall not exceed 0.073 lb/hr and 0.32 tons/yr.

2.4.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.4.8 Monitoring Requirements

a. i. The Permittee shall equip the fermentation scrubber with continuous monitoring devices for the scrubber water flow rate, scrubbant discharge temperature at the bottom of the scrubber, scrubber exhaust gas discharge temperature, and differential pressure across the packed bed and demister section of the scrubber. These monitoring devices shall be installed, calibrated and maintained according to the supplier's specifications and record minute-by-minute and average hourly data.

ii. During any period when measurements are not recorded by the computerized data logging system, measurements shall be manually recorded at least twice per shift.

2.4.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the fermentation process:

a. Records of normal process parameters, with supporting calculations and documentation:

i. Fermentation feed rate;

ii. Fermentation tank liquid levels;

iii. Quantity of grind (ground grain) in each fermentation tank.

b. Records for operation of the fermentation process and scrubber, including:

i. Identification of any periods of scrubber upsets and the operating levels during such.

ii. Records for any period during which any affected process was in operation when the scrubber was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation.

c. The Permittee shall keep an operation log and a log for inspection, maintenance, and repairs for fermentation units and associated scrubber including the time when the scrubber is not in operation.

d. Records of the VOM and HAP emissions from the affected processes (tons/month and tons/year), as determined at the scrubber and any other vents, based on appropriate emission factors, with supporting calculations.

e. Records for upsets in fermentation operations or other operations that could generate additional VOM emissions, with a description of the incident, an estimate of the additional VOM and HAP emissions that occurred with supporting calculations, and background information.

2.4.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected units as follows. These notifications shall include the information specified by Condition 3.5.

i. If there is an exceedance of applicable requirements for the scrubber, as determined by the monitoring required by Condition 2.4.8, that lasts longer than three hours, the Permittee shall immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.4.11 Compliance Procedures

a. Compliance with the emission limitations of Condition 2.4.6 shall be based on the records required by Conditions 2.4.8, 2.4.9, and appropriate emissions factors developed from testing of the affected units.

2.5 Distillation

2.5.1 Description

During the distillation process, the solids and water are separated from the ethanol-rich "beer" produced in the fermentation tanks with a vacuum distillation system, to produce approximately 190 proof ethanol (95% ethanol, 5% water). The remaining water in the ethanol is removed in a molecular sieve to produce approximately 200 proof (100% ethanol). Denaturant is added to the finished product prior to storage.

The emissions from the distillation process are currently controlled by a scrubber. Adkins intends to use an afterburner as the principle control device for the distillation process in the future. Re-directing distillation emissions to the afterburner will increase the volume of cold water available for the fermentation scrubber and act to increase its control efficiency. The distillation scrubber will be maintained in operational condition and be used to control distillation emissions when they are not directed to the afterburner. Accordingly, the conditions in this section applicable to the distillation scrubber apply when the scrubber is being used or relied upon to control emissions from the connected processes. As these emissions are redirected to the afterburner, these conditions would not be applicable.

Stillage from the bottom of the distillation system is routed to mechanical centrifuges for de-watering. The recovered water or "thin stillage" from the centrifuges is processed in a steam driven evaporator to produce thick syrup. The wet cake from the centrifuges and the syrup solubles from the evaporator are mixed and conveyed to the feed operations, to either be shipped out wet or to be further processed by drying.

2.5.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
EU010	Beer Column	Afterburner or Distillation Scrubber (CE003)
	Rectifier Column	
	Side Stripper	
	Molecular Sieve	
	Whole Stillage Tank	
	Centrifuges	Afterburner

2.5.3 Applicability Provisions and Applicable Regulations

a. An "affected process" for the purpose of these unit specific conditions is an emission unit described in Conditions 2.5.1 and 2.5.2.

b. Affected process emission units are subject to 35 IAC 212.321. (Refer to Condition 2.4.3(b).)

2.5.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected process not being subject to either 40 CFR 60, Subpart NNN or RRR, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations, or Reactor Processes, respectively, because the operations involve a biological reaction.

b. This permit does not address the applicability of 35 IAC 215.301 for the affected processes because the VOM emissions of the processes are required to be controlled such that organic material emissions are less than 8.0 lb/hr. (Refer to Condition 2.5.6(a)).

2.5.5 Operational and Production Limits and Work Practices

a. Scrubber operating requirements

i. The operating parameter(s) of the air pollution control equipment for the affected distillation units shall be maintained at levels that are consistent with levels at which emission testing demonstrated compliance with applicable requirements, including the following:

A. Minimum scrubber water flow rate: 20 gal/minute, hourly average.

B. Maximum scrubber water outlet temperature: 113°F, hourly average.

C. Average scrubber exhaust gas outlet temperature: 81°F, hourly average.

ii. If the differential pressure across the scrubber is outside of the normal operating range (either below 4 or above 18 inches of water column) for a period of 4 hours, the Permittee shall inspect the scrubber with 24 hours and initiate appropriate corrective action to restore the pressure drop of the scrubber to the normal range.

iii. The Permittee shall operate and maintain the scrubber in accordance with written procedures that it develops and maintains.

b. If emission testing of the affected process shows compliance with VOM limitations by less than a 20 percent margin, the Permittee shall implement a Control Improvement Program for the affected process, as set by Condition 2.4.5(b).

2.5.6 Emission Limitations

a. The VOM emissions from the affected process shall be controlled by at least 95 % weight percent or to a concentration of no more than 20 ppmv, whichever is less stringent.

b. Emissions of VOM from the affected process shall not exceed 2.19 pound/hour and 9.58 tons/year.

c. i. The acetaldehyde emissions of the affected process shall not exceed 0.83 lb/hr and 3.64 tons/yr.

ii. The emissions of individual HAPs, other than acetaldehyde, from the affected process shall not exceed 0.055 lb/hr and 0.24 tons/yr.

iii. The emissions of total HAPs, other than acetaldehyde, from the affected process shall not exceed 0.082 lb/hr and 0.36 tons/yr.

2.5.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.5.8 Monitoring and Instrumentation Requirements

a. The Permittee shall equip the distillation scrubber with a continuous monitoring device for scrubber water flow rate, scrubbant discharge temperature at the bottom of the scrubber, and scrubber exhaust gas discharge temperature and the differential pressure across the packed bed and demister section of the scrubber. These devices shall be installed, calibrated and maintained according to the supplier’s specifications and record minute-by-minute and average hourly data. These monitoring devises shall be operational whenever distillation exhausts are directed to the distillation scrubber.

b. During any period when measurements are not recorded by the computerized data logging system, measurements shall be manually recorded at least twice per shift.

2.5.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected process:

a. Records of normal distillation process operating parameters, hourly average, with supporting calculations and documentation:

i. Beer feed rate

ii. Beer well ethanol content

iii. 190-proof feed rate

iv. 200-proof feed rate

b. Records for operation of the distillation process and scrubber, including:

i. Identification of any periods of scrubber upsets and the operating levels during such.

ii. Records for any period during which any affected process was in operation when the scrubber was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation.

c. The Permittee shall keep an operation log and a log for inspection, maintenance, and repairs for affected process and associated scrubber including the time when the scrubber is not in operation.

d. Records for upsets in the affected process or other operations that could generate additional VOM emissions, with a description of the incident, an estimate of the additional VOM and HAP emissions that occurred with supporting calculations, and background information.

e. Records of the VOM and HAP emissions from the affected process (tons/month and tons/year), as determined at the scrubber and any other vents, based on appropriate emission factors, with supporting calculations.

2.5.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected process as follows. These notifications shall include the information specified by Condition 3.2.

i. If there is an exceedance of applicable requirements for the scrubber, as determined by the monitoring required by Condition 2.5.8, that lasts longer than three hours, the Permittee shall immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.5.11 Compliance Procedures

Compliance with the emission limits of Condition 2.5.6(b) shall be based on the records required by Conditions 2.5.8 and 2.5.9, and appropriate emissions factors developed from testing at the source.

2.6 Feed Drying and Handling Operations

2.6.1 Description

A natural gas fired rotary dryer will be used to produce dry feed from wet cake. The dryer will be equipped with a cyclone to control emissions of PM10 and an afterburner to control emissions of CO, VOM, and HAP from the dryer. The afterburner also controls the associated feed cooler, which is exhausted through the dryer after passing through a baghouse for control of its PM10 emissions. The construction of this feed drying system with afterburner is authorized by Construction Permit 03040053. This new dryer and cooler system replaces the original dryer system installed with the plant, which was not equipped with an afterburner or other combustion-type control device.

When the afterburner is operated, it will also be used to control emissions from the distillation process and centrifuges.

Feed that is not dried is shipped as wet cake.

2.6.2 List of Emission Units and Pollution Control Equipment

Description of Emission Unit	Emission Control Equipment
Feed Dryer with Low-NO_x burners (60 million Btu/hr)	Cyclones, Scrubber, Afterburner
Feed Cooler (Baghouse)	
Dry Feed Transfer Conveyor	Spot Filter baghouse (FX-830)
Dry Feed Loadout	
Wet Cake Handling and Loadout (Wet Cake Pad)	

2.6.3 Applicability Provisions and Applicable Regulations

a. An "affected unit" for the purpose of these unit specific conditions is an emission unit described in Conditions 2.6.1 and 2.6.2.

b. Affected units are subject to 35 IAC 212.321. [Refer to Condition 2.4.3(b)]

c. The emission of smoke or other particulate matter from the affected units shall not have an opacity greater than 30 percent. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

2.6.4 Non-Applicability of Regulations of Concern

For the feed dryer, this permit does not address the applicability of 35 IAC 215.301 because the VOM emissions of the feed dryer are required to be controlled such that organic material emissions are less than 8.0 lb/hr. [Refer to Condition 2.6.6(a)]

2.6.5 Operational and Production Limits and Work Practices

a. i. Natural gas and biogas from the bio-methanator shall be the only fuels fired in the feed dryer.

ii. The rated firing rate of the feed dryer shall not exceed 60 million Btu/hour.

iii. The feed dryer shall be equipped, operated, and maintained with low NO_x burners.

b. i. Natural gas shall be the only fuel fired in the afterburner.

ii. The rated firing rate of the afterburner shall not exceed 8.0 million Btu/hour.

c. i. During operation of the feed dryer, the key operating parameter of the feed dryer/control system shall be maintained at levels that are consistent with levels at which emission testing demonstrated compliance with applicable requirements, including the following:

A. Maximum temperature at inlet of feed dryer: °F.

B. Minimum Pressure drop across the cyclones: inches H_2O.

C. Minimum Water flow rate of the scrubber: gallon per minute.

D. Minimum and maximum pressure drop across the scrubber: inches H_2O.

ii. During periods when feed is present in the dryer or emissions from other units are vented to the afterburner, the minimum afterburner combustion chamber temperature shall be maintained at a temperature that is consistent with the temperature at which emission testing demonstrated compliance with applicable requirements.

iii. The combustion chamber of the afterburner shall be preheated to the manufacturer's recommended temperature or a temperature that is consistent with the most recent emission test in which compliance was demonstrated, prior to sending the wet cake to the feed dryer or venting other units to the afterburner.

iv. Notwithstanding the above, for the purpose of evaluation of the control system and further emission testing, the Permittee may operate the control system at different operating parameters in accordance with a plan submitted to the Illinois EPA describing the evaluation and testing program.

d. i. When feed is present in the dryer, the dryer shall only be vented to the bypass stack for the afterburner as necessary for operating safety, e.g., purge of the dryer/afterburner system in the event of a burner flameout.

ii. Other units controlled by the afterburner shall be vented either to the afterburner or to their existing stacks.

e. i. During a scheduled shutdown of the feed dryer/afterburner, the transfer of the distillation process emissions to the distillation scrubber shall be accomplished prior to the shutdown of the afterburner.

ii. The Permittee shall maintain the distillation scrubber such that it can be readily operated to provide control of distillation process emissions, including operating the scrubber on a periodic basis if needed to reasonably ensure ready availability of the scrubber to control the distillation process.

f. The Permittee shall operate and maintain the feed dryer and associated control system in accordance with written procedures developed and maintained by the Permittee.

g. i. If the initial emission testing or subsequent testing of the feed dryer/afterburner, which shows compliance, shows compliance with requirements for VOM emission by less than 20 percent of the permitted VOM emissions (e.g., afterburner control efficiency is only in the range of 95.0 to 96.0 percent) the Permittee shall implement a Control Improvement Program (Program) for the affected

process with the objective of achieving compliance by a margin of at least 20 percent.

ii. The Permittee shall submit a copy of the Program to the Illinois EPA for its review and comments within 30 days after receiving test results that triggers this requirement for a Control Improvement Program (Program).

iii. A. If the emission testing demonstrated that the compliance margin was between 10 and 20 percent, the Program shall be completed in one year.

B. If the emission testing demonstrated the compliance margin was less than 10 percent, the Program shall be completed in six months.

C. Following completion of the Program, the Permittee shall again test VOM emissions from the affected unit.

h. The Permittee shall obtain a Construction Permit from the Illinois EPA prior to physically removing the Venturi scrubber from the control system for the feed dryer.

i. i. Emissions of particulate matter from feed loadout shall be controlled by partial enclosure and loadout practices to minimize loss of dust.

ii. The Permittee shall comply with the requirements of Conditions 2.3.6(a), 2.3.7(a), 2.3.9(b), (c), (d) and (e) and 2.3.10 for the handling and loadout of dry feed

2.6.6 Emission Limitations

a. i. The VOM emissions from the feed dryer shall be controlled by at least 95 % weight percent or to a concentration of no more than 10 ppmv, whichever is less stringent.

ii. The CO emissions from the feed dryer shall be controlled by at least 90 % weight percent or to an outlet concentration of no more than 100 ppmv, whichever is less stringent.

b. i. Emissions of the feed dryer/afterburner shall not exceed the following limits. These limits are based on information in the application, including the information from the dryer design and construction contractor based on previous dryer

testing and proposed design changes. These emission estimates include the maximum natural gas firing rate in the dryer and afterburner of 60 million Btu/hr and 8 million Btu/hr respectively:

Pollutant	lb/hr	tons/yr)
NO_x	8.0	35.04
CO	9.5	41.61
VOM	4.0	17.52
PM	7.5	32.85
SO_2	7.5	32.85

ii. Emissions of PM from dry feed loadout shall not exceed 0.04 lb/ton feed, 5.88 lb/hr and 6.62 tons/year.

c. i. The acetaldehyde emissions of the feed dryer/afterburner shall not exceed 0.5 lb/hr and 2.2 tons/yr.

ii. The emissions of individual HAPs, other than acetaldehyde, from the feed dryer/afterburner shall not exceed 1.45 lb/hr and 6.35 tons/yr.

iii. The emissions of total HAPs, other than acetaldehyde, from the feed dryer/afterburner shall not exceed 2.20 lb/hr and 9.65 tons/yr.

2.6.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.6.8 Monitoring and Instrumentation Requirements

a. The Permittee shall install, operate, and maintain the following monitoring devices, which shall be operated at all times that the feed dryer is in operation:

i. Inlet temperature and outlet temperature of the feed dryer.

ii. Differential pressure (pressure drop) across the cyclones.

iii. Combustion chamber temperature of the afterburner.

b. The Permittee shall install, operate, and maintain devices to monitor the valve or damper position on the flow control devices directing the various exhaust streams to the afterburner, which shall be operated at all times that

the plant is in operation. The position of these valves shall be monitored electronically by the plant operating system.

2.6.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items:

a. Design information for the feed dryer/afterburner:

i. The design heat input of the feed dryer.

ii. Moisture removal capacity, lb water/hour.

iii. The design heat input of the afterburner, Btu/hr.

b. Operating records for affected units

Feed production as shipped (wet feed: tons/month, and dry feed: tons/month).

c. The Permittee shall keep an operation log and a log for inspection, maintenance, and repairs for feed dryer and associated control system, including the time when feed is present in the dryer, the afterburner not in operation, or the afterburner is by passed.

d. Records for venting the feed dryer through the bypass stack and upsets in feed dryer operations or other operations that could generate additional emissions, with a description of the incident, an estimate of the additional CO, VOM, and HAP emissions that occurred, with supporting calculations and background information.

e. Monthly and annual NO_x, CO, PM, SO_2, and VOM emissions from the feed dryer/afterburner, with supporting calculations.

2.6.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected units as follows. These notifications shall include the information specified by Condition 3.5.

i. If there is an exceedance of applicable requirements for the afterburner, as determined by the monitoring required by Condition 2.6.8 that lasts longer than two hours, the Permittee shall immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

iii. If there is any deviation of the requirements of this permit, not addressed by the above reporting requirements, as determined by the records required by this permit or by other means, the Permittee shall submit a report with the quarterly compliance report.

iv. Notwithstanding the above, if a deviation will occur from required maintenance, repair or other activity that can be scheduled in advance, the Permittee shall also notify the Illinois EPA prior to undertaking such activity that if it is feasible to do so. Such notification shall be submitted at least 5 days in advance unless the activity is scheduled less than 5 days in advance.

2.6.11 Compliance Procedures

a. For VOM and CO emissions from the feed dryer/afterburner and cooler, periods of excess emissions shall include any 1-hour period in which the average combustion temperature, when process units controlled by the afterburner are operating, was more than 50°F below the temperature during testing than demonstrated compliance with applicable requirements.

b. Compliance with the emission limits of Condition 2.6.6(b) shall be based on the records required by Condition 2.6.9 and appropriate emissions factors.

2.7 Ethanol and Denaturant Storage Tanks

2.7.1 Description

Internal floating roof storage tanks are used to store denaturant and product ethanol.

2.7.2 List of Emission Equipment and Pollution Control Equipment

Storage Tanks EP 8	Description	Emission Control Equipment
T55	190 Proof Day Tank Nom. Capacity 91,400 Gallons	Internal Floating Roof with Primary and Secondary Seals
T60	200 Proof Day Tank Nom. Capacity 111,700 Gallons	Internal Floating Roof with Primary and Secondary Seals
T65	Denaturant Tank Nom. Capacity 40,600 Gallons	Internal Floating Roof with Primary and Secondary Seals
T70	Denatured Ethanol Tank Nom. Capacity 651,000 Gallons	Internal Floating Roof with Primary and Secondary Seals

2.7.3 Applicability Provisions

a. An "affected tank," for the purposes of these unit specific conditions is a storage tank described in Conditions 2.7.1 and 2.7.2

b. The affected tanks are subject to the NSPS for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb, and related provisions in Subpart A.

c. The affected tanks are subject to the control requirements of 35 IAC 215.122, which requires a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. The Illinois EPA has not approved any alternative control. [Submerged Loading Pipe - 35 IAC 215.122(b)]

2.7.4 Non-Applicable Regulations

For the affected tanks, this permit does not address the applicability of 35 IAC 215.121, 215.127, and 215.128. This is based on the Illinois EPA's finding that compliance with 40 CFR 60, Subpart Kb assures compliance with 35 IAC 215.121, 215.127, and 215.128, following the review of the requirements of 40 CFR 60 Subpart Kb and 35 IAC 215.121, 215.127, and 215.128.

2.7.5 Control Requirements

Each affected tank shall be equipped with the following closure devices between the wall of the storage vessel and the

edge of the internal floating roof or other device complying with the NSPS [40 CFR 60.112b(a)(1)(ii)]:

a. Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

2.7.6 Emission Limitations

a. Emissions of VOM from the affected tanks shall not exceed 2.25 tons/year.

2.7.7 Operating Requirements

a. Each affected tank is limited to the storage of ethanol or denaturant.

b. Each affected tank shall be operated in compliance with the operating requirements of 40 CFR 60.112b(a)(1) and 60.113b(a), as follows:

i. The internal floating roof shall float on the liquid surface at all times, except during those intervals when the storage tank is being completely emptied and subsequently refilled and the roof rests on its leg supports. When the roof is resting on its leg supports, the process of emptying or refilling shall be continuous and shall be accomplished as rapidly as possible [40 CFR 60.112b(a)(1)(i)]

ii. Each opening in a non-contact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents shall provide a projection below the liquid surface. [40 CFR 60.112b(a)(1)(iii)]

iii. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains shall be equipped with a cover or lid which is maintained in a closed position at all times (i.e., no visible gaps) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [40 CFR 60.112b(a)(1)(iv)]

iv. Automatic bleeder vents shall be equipped with a gasket and be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [40 CFR 60.112b(a)(1)(v)]

v. Rim space vents shall be equipped with a gasket and be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [40 CFR 60.112b(a)(1)(vi)]

vi. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening. [40 CFR 60.112b(a)(1)(vii)]

vii. Each penetration of the internal floating roof that allows for the passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. [40 CFR 60.112b(a)(1)(viii)]

viii. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. [40 CFR 60.112b(a)(1)(ix)]

ix. A tank that is in-service shall be repaired or emptied upon identification in an inspection that the floating roof is not resting on the surface of the VOL, there is liquid accumulated on the roof, the seal is detached, or there are holes or tears in the seal fabric. These actions shall be completed within 45 days of the inspection unless an extension is granted. [40 CFR 60.113b(a)(2) and (a)(3)(ii)]

x. A tank that is empty shall be repaired prior to refilling the tank upon identification in an inspection that the floating roof has defects, the primary seal has holes, tears or other openings in the seal or seal fabric, or the secondary seal has holes, tears or other openings in the seal or seal fabric, or the gaskets no longer close off. [40 CFR 60.113b(a)(3)(ii) and (a)(4)]

2.7.8 Inspection Requirements

The Permittee shall fulfill the applicable testing and procedures requirements of 40 CFR 60.113b(a) for each affected tank, including the following:

a. For affected tanks equipped with a liquid-mounted, on an annual basis, visually inspect the internal floating roof and the primary seal through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage tank, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the Permittee shall repair the items or empty and remove the storage tank from service within 45 days. If a failure that is detected during this inspection cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Illinois EPA in the inspection report required in Condition 1.5.10(a)(i) (40 CFR 60.115b(a)(3)). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the storage tank will be emptied as soon as possible. [40 CFR 60.113b(a)(2)]

b. As applicable for tanks equipped with both primary and secondary seals, visually inspect each affected tank as follows: [40 CFR 60.113b(a)(3)]

   i. Visually inspect the tank as specified by 40 CFR 60.113(a)(4) at least every 5 years; or

   ii. Visually inspect the tank as specified by 40 CFR 60.113(a)(2) at least once every 12 months.

c. Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the tank is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage tank with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of tanks for which annual visual inspection are performed and at intervals greater than 5 years in the case of tanks equipped with double-seal systems complying by means of 40 CFR 60.112b(a)(1)(ii)(B). [40 CFR 60.113b(a)(4)]

The Permittee shall give prior notification to the Illinois EPA for the above inspections as required by 40 CFR 60.113b(a)(5). (See also Condition 2.7.10(b).)

2.7.9 Recordkeeping Requirements

The Permittee shall maintain the following records for affected tanks:

a. The Permittee shall fulfill the applicable recordkeeping requirements of 40 CFR 60.115b for each affected tank pursuant to 40 CFR 60.115b(a), including keep a record of each inspection performed as required by Condition 2.7.8. [40 CFR 60.115b(a)(2)]

i. The date the inspection was performed;

ii. Who performed the inspection;

iii. The method of inspection;

iv. The observed condition of each feature of the internal floating roof (seals, roof decks and fittings), with the raw data recorded during the inspection; and

v. Summary of compliance.

b. The Permittee shall maintain records of the following for each affected tank to demonstrate compliance with the Out-of-Service Inspection requirements of Condition 2.7.8(c):

Sufficient records to identify whenever the tank is empty for any reason or whenever repairs are made as a result of regular inspection or incident of roof damage or defect.

c. The Permittee shall keep the operating records required by 40 CFR 60.116b for each affected tank, as follows:

Records of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [40 CFR 60.116b(c)]

d. Monthly and annual VOM emissions attributable to the affected tanks in tons/month and ton/year in accordance with the compliance procedures in Condition 2.7.11 to be calculated and recorded annually, unless a more frequent determination is necessary to determine whether the

plant's annual emissions of VOM have exceeded the limit in Table I.

2.7.10 Reporting Requirements

a. The Permittee shall fulfill all applicable reporting and notification requirements of the NSPS, 40 CFR 60.7, for the affected tanks.

b. The Permittee shall submit written notifications and reports to the Illinois EPA as required by the NSPS, for each affected tank, as follows:

i. If any of the conditions described in Condition 2.7.8(c) are detected during the annual visual inspection required in Condition 2.7.8, a report shall be furnished to the Illinois EPA within 30 days of the inspection. Each report shall identify the tank, the nature of the defects, and the date the tank was emptied or the nature of and date the repair was made. [40 CFR 60.115b(a)(3)]

ii. Notify the Illinois EPA in writing at least 30 days prior to the filling or refilling of a tank for which an inspection is required by Conditions 2.5.8 to afford the Illinois EPA the opportunity to have an observer present. If such inspection is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Illinois EPA at least 7 days prior to the refilling of the tank. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Illinois EPA at least 7 days prior to the refilling. [40 CFR 60.113b(a)(5)]

c. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected tanks as follows. These notifications shall include the information specified by Condition 3.5.

i. If a tank is damaged so there is a deviation from an applicable requirements which is not repaired or otherwise corrected within 24 hours, the Permittee shall then immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.7.11 Compliance Procedures

Emissions from the affected storage tanks shall be determined based on operating information for the tanks and the USEPA's TANKS program.

2.7.12 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected tank without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to continue to comply with applicable requirements and to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

Changes in seal type and configuration, made during the course of normal repair and maintenance of an affected storage tank's floating roof.

2.8 Loading Rack

2.8.1 Description

The loading rack transfers ethanol into tank trucks for shipment. VOM emissions occur from the VOM-laden air displaced from the tank when material is loaded.

2.8.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Truck Loading Rack	Loading Rack Used for Loading Ethanol Into Tank Trucks	Flare

2.8.3 Applicability Provisions and Applicable Regulations

a. An "affected loading rack," for the purpose of these unit-specific conditions, is a loading rack described in Conditions 2.8.1 and 2.8.2.

2.8.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected loading rack not being subject to applicable requirements for handling of gasoline because the vapor pressure of the ethanol product is less than 4.0 psi and hence will not be subject to the requirements applicable to handling of gasoline, including 40 CFR 60 Subpart XX, the NSPS for Bulk Gasoline Terminals.

b. The affected loading rack is excused from the requirement to use submerged loading pipes pursuant to 35 IAC 215.122(a) because each affected loading rack is equipped and operated with vapor collection and control equipment.

2.8.5 Control Requirements and Operational Limitations

a. The Permittee shall route vapor displaced by ethanol loadout to the flare system.

b. The flare shall be designed and be operated to comply with applicable requirements of 40 CFR 60.18, including:

i. The flare shall be operated by the Permittee with no visible emissions as determined by the methods specified in 40 CFR 60.18(f)(1), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

ii. The flare shall be operated by the Permittee with a flame present when vapors displaced by ethanol loadout are being vented to it, as determined by the methods specified in 40 CFR 60.18(f)(2).

iii. The flare shall be used only with the net heating value of the gas being combusted being 300 Btu/scf or greater. The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR 60.18(f)(3). Note: Natural gas or other gaseous fuel may be added to the displaced vapors to comply with this requirement.

iv. The flare shall be operated by the Permittee with an exit velocity less than the maximum allowable velocity, V_{max}, as determined by the method specified in 40 CFR 60.18(f)(6).

v. The Permittee shall monitor the flare to ensure that it is operated and maintained in conformance with the manufacture=s design, as required by 40 CFR 60.18(d).

c. The Permittee shall generally operate the ethanol loading rack with the flare system in accordance with good air pollution control practice to minimize emissions of VOM.

d. The vapor control system shall be operated at all times during the loading of organic liquids and all displaced vapors are to be vented only to the vapor control system.

e. At all times during the loading of organic liquids, the vapor control system shall operate and all vapors displaced in the loading of organic materials are to be vented only to the vapor control system.

f. There shall be no liquid drainage from the loading device of the affected loading rack when it is not in use.

g. The Permittee shall provide a pressure tap or equivalent on the vapor collection system associated with an affected loading rack. The vapor collection system and the organic material loading equipment shall be operated in such a manner that it prevents avoidable leaks of liquid during loading or unloading operations and prevents the gauge pressure from exceeding 18 inches of water and the vacuum from exceeding 6 inches of water and to be measured as close as possible to the vapor hose connection.

h. All loading and vapor return lines shall be equipped with fittings that are designed to be vapor tight.

2.8.6 Emission Limitations

a. The VOM emissions from the affected loading rack shall be controlled to achieve at least 95 % reduction in VOM emissions during ethanol loadout operations.

b. This permit is issued based on the flare achieving a nominal VOM destruction efficiency of at least 98 percent.

c. The total organic compound emissions from the affected loading rack and associated flare shall not exceed 5.0 pounds per 1000 gallons of material loaded. This rate shall include those emissions not captured or controlled.

d. Emissions of nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic material (VOM) from ethanol loadout and flaring shall not exceed the following limits:

	Emission Limits	
Pollutant	(Tons/Month)	(Tons/Year)
NO_x	0.07	1.79
CO	0.16	0.72
VOM	0.20	2.13

These limits are based on the information in the application for the flare, including emission factors for NO_x and CO, respectively, of 0.034 and 0.084 pound per 1,000 gallons of ethanol loaded out and maximum ethanol throughput of 42,500,000 gallons per year.

e. This permit is issued based on minimal emissions of PM and SO_2 from the flare. For this purpose, emissions shall not exceed a nominal emission rate of 0.2 pound/hour and 1.0 tons/year.

2.8.7 Testing Requirements

Upon written request by the Illinois EPA, The Permittee shall perform emission tests as requested for an emission unit as specified in Condition 3.2.

2.8.8 Monitoring Requirements

a. The Permittee shall operate the ethanol loading rack and flare in accordance with written procedures. These procedures may be the procedures provided by the supplier of equipment or procedures developed and maintained by the Permittee.

b. The Permittee shall keep a copy of the operating and maintenance procedures for the flare system provided by

the supplier at a location at the plant where they are readily accessible to the individuals who are responsible for operation and maintenance of the flare.

2.8.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected loading rack:

a. Operating records for each day on which ethanol loadout is conducted, as follow:

   i. Date and amount of ethanol loaded.

   ii. Confirmation that established operating procedures were followed.

   iii. Confirmation that the flare functioned properly, i.e., a flame was present and no visible emissions were observed except as allowed by 40 CFR 60.18(f)(1).

b. Records for each event when ethanol loadout continues when the flare is not operating properly to control VOM emissions:

   i. Date, time, and duration of event.

   ii. Description of event.

   iii. Estimated amount of ethanol loaded until the situation was corrected or loadout ceased.

   iv. Reason why loadout could not be immediately ceased.

   v. Corrective actions taken.

   vi. Actions taken to prevent or reduce the likelihood of future occurrences.

c. The Permittee shall keep an inspection, maintenance and repair log for the flare system, which lists activities that are performed, with date and responsible individual(s).

d. Records of the emissions of VOM, CO and NO_x from the affected loading rack, with supporting calculations. For this purpose, standard emission factors shall be used for periods when the flare operates properly, e.g., 98 percent destruction of VOM. For periods when the flare does not

operate properly, specific estimates of emissions shall be made, accompanied by written justification or explanation.

2.8.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected loading rack as follows. These notifications shall include the information specified by Condition 3.5.

i. If there is an exceedance of applicable requirements during loadout of ethanol that lasts longer than one hour, the Permittee shall immediately notify the Illinois EPA. For this purpose, an exceedance shall be considered to continue even if operation of the loading rack is interrupted if the exceedance condition is still present when operation is resumed.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.8.11 Compliance Procedures

Compliance with the emission limits of Condition 2.8.6 shall be based on the records required by Condition 2.8.9, the use of appropriate emission factors, developed using published USEPA emissions estimation methodology, and standard USEPA emission factors, as control systems are properly operated.

2.8.12 Operational Flexibility/Anticipated Operating Scenarios

a. The Permittee is authorized to make the following physical changes with respect to these units without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner if these changes would accompany an activity that would constitute construction or modification of an emission unit, as defined in 35 IAC 201.102.

Changes in fittings made during the course of repair and maintenance of the affected loading rack.

b. For the purpose of maintaining control during the scheduled or unplanned outages of the permanent flare, the Permittee is allowed to install and operate a portable flare on a temporary basis subject to the following provisions:

i. The temporary flare may be operated during periods when the permanent flare is out of service and as reasonably needed for transition between the permanent and a portable flare.

ii. The Permittee shall notify the Illinois EPA prior to proposed installation of temporary flare. With this notification, the Permittee shall provide information on the type of the flare, capacity of the flare, and duration of time for which the flare will be operated.

iii. The requirements of this permit shall apply to the portable flare or as appropriate, to the combination of the permanent and temporary flare (Condition 2.8.6(d)).

iv. The Permittee shall notify the Illinois EPA when the permanent flare is returned to service and the portable flare is removed from the site.

2.9 Leaking Components

2.9.1 Description

Equipment components, such as valves, flanges, etc., involved with the fermentation, distillation and subsequent handling of ethanol and denaturant generate VOM emissions when they leak.

2.9.2 List of Emission Equipment and Pollution Control Equipment

Emission Unit	Description	Emission Control Measures
Equipment Components (Valves, Flanges, Pump Seals, Etc.)	Leaks that occur in the piping system	Work Practices and Equipment Replacement

2.9.3 Applicability Provisions

a. The "affected components" are equipment components, described in Condition 2.9.1 and 1.9.2 that are in VOM service.

b. The affected components associated with the fermentation and distillation operations are subject to the NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, 40 CFR 60, Subpart VV, and related provisions in Subpart A.

c. Pursuant to 35 IAC 215.142, no person shall cause or allow the discharge of more than 2 cubic inches of volatile organic liquid (VOL) with vapor pressure of 2.5 psia or greater at 70 °F into the atmosphere from any pump or compressor in any 15 minute period. (Is this really needed?)

2.9.4 Non-Applicable Regulations

This permit is issued based on affected components not being subject to the requirements of 35 IAC Part 215, Subpart Q, Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment, pursuant to the applicability provisions at 35 IAC 215.420, because the plant will have less than 1,500 components in gas or light liquid service (which components are used to manufacture the chemicals or polymers listed in 35 IAC Part 215, Appendix D).

2.9.5 Control Requirements

The Permittee shall follow the work practice requirements set forth in 40 CFR 60.482-1 (Standards: general), 60.482-2 (Standards: Pumps in light liquid service), 60.482-4 (Standards: Pressure relief devices in gas/vapor service),

60.482-5 (Standards: Sampling connection systems), 60.482-6 (Standards: Open-ended valves or lines), 60.482-7 (Standards: Valves in gas/vapor service and light liquid service), 60.482-8 (Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors), 60.482-9 (Standards: Delay of repair), and 60.482-10 (Standards: Closed vent systems and control devices).

Note: The Permittee may elect to utilize the alternative standards of 40 CFR 60.483-1 or 60.483-2, where applicable.

2.9.6 Emission Limitations

a. Emissions of VOM from the affected components shall not exceed 5.0 tons per year, as determined by use of appropriate USEPA methodology for estimating emissions from leaking components.

2.9.7 Operating Requirements

a. For affected components that are not subject to 40 CFR Part 60, Subpart VV, the Permittee shall repair any affected component from which a leak of volatile organic liquid (VOL) is detected or observed. The repair shall be completed as soon as practicable but no later than 21 days after the leak is found. If the leaking component cannot be repaired until the process unit is shut down, the leaking component must then be repaired before the unit is restarted.

b. The Permittee shall follow the operating requirements set in 40 CFR 60.482-1 (Standards: general), 60.482-2 (Standards: Pumps in light liquid service), 60.482-4 (Standards: Pressure relief devices in gas/vapor service), 60.482-5 (Standards: Sampling connection systems), 60.482-6 (Standards: Open-ended valves or lines), 60.482-7 (Standards: Valves in gas/vapor service and light liquid service), 60.482-8 (Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors), 60.482-9 (Standards: Delay of repair), and 60.482-10 (Standards: Closed vent systems and control devices).

2.9.8 Inspection Requirements

The Permittee shall follow the inspection requirements set forth in 40 CFR 60.482-1 (Standards: General), 60.482-2 (Standards: Pumps in light liquid service), 60.482-4 (Standards: Pressure relief devices in gas/vapor service),

60.482-5 (Standards: Sampling connection systems), 60.482-6 (Standards: Open-ended valves or lines), 60.482-7 (Standards: Valves in gas/vapor service and light liquid service), 60.482-8 (Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors), 60.482-9 (Standards: Delay of repair), and 60.482-10 (Standards: Closed vent systems and control devices).

Note: The Permittee may elect to utilize the alternative standards of 40 CFR 60.483-1 through 60.483-2, where applicable.

2.9.9 Recordkeeping Requirements

a. The Permittee shall maintain records as specified in 40 CFR 60.486.

b. The Permittee shall maintain a leaking components monitoring log, which shall contain the following information:

i. The name of the process unit where the component is located;

ii. The type of component (e.g., valve, seal);

iii. The identification number of the component;

iv. The date on which a leaking component is discovered;

v. The date on which a leaking component is repaired;

vi. The date and instrument reading of the recheck procedure after a leaking component is repaired;

vii. A record of the calibration of the monitoring instrument;

viii. The identification number of leaking components which cannot be repaired until process unit shutdown; and

ix. The total number of components inspected and the total number of components found leaking during that monitoring period.

c. All required reports as specified at 40 CFR 60.487.

d. Records on at least an annual basis of the VOM and HAP emissions attributable to affected components, with supporting documentation and calculations.

2.9.10 Reporting Requirements

a. The Permittee shall fulfill all applicable notification and reporting requirements of the NSPS for the affected components.

b. The Permittee shall report any deviations from the requirements of this permit for the affected components in the quarterly compliance report submitted to the Illinois EPA. These reports shall include the information specified by Condition 3.5.

2.9.11 Compliance Procedures

Compliance with emission limits of Condition 2.9.6 shall be based on the records required by Condition 2.9.9 and the use of appropriate USEPA emissions factors for VOM losses from leaking components.

2.9.12 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to repair and replace affected components without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102.

2.10 Bio-methanator

2.10.1 Description

The bio-methanator treats certain wastewater streams that contain high levels of organic material, producing a methane-rich bio-gas as a byproduct. This bio-gas is either used as fuel at the plant, substituting for natural gas, or disposed of by burning in a flare.

2.10.2 List of Emission Units and Pollution Control Measures

Emission Unit Description	Emission Control Equipment
Bio-methanator	Digester Flare

2.10.3 Applicable Regulations

Affected emission units are subject to 35 IAC 212.321. (Refer to Condition 2.4.2(b).)

2.10.4 Non-Applicability of Regulations of Concern

None

2.10.5 Operational and Production Limits and Work Practices

a. The exhaust from the bio-methanator shall directly routed to the flare or used as fuel in the dryer.

2.10.6 Emission Limitations

Emissions from the bio-methanator, excluding emissions associated with use of bio-gas in the dryer, shall each not exceed the following limits:

Pollutant	Emission Factor	Emission Rate	
	Lb/million Btu	Lb/hr	Tons/yr
NO_x	0.068	0.12	0.53
CO	0.37	0.67	2.93
VOM	0.14	0.25	1.11

These limits are based on the maximum capacity of the digester flare (1.8 million Btu/hr) and standard emission factors for flare operation.

2.10.7 Testing Requirements

None

2.10.8 Monitoring Requirement

The bio-methanator flare shall be equipped with a monitor or other device to confirm presence of a flame if bio-gas is being sent to the flare

2.10.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the bio-methanator:

a. A file containing estimates of the maximum and typical rates of bio-gas generation, cubic feet and million Btu/hr, with supporting data and calculations.

b. A file containing an estimates of the typical rate of gas consumed by the pilot flame for the flare, if any.

c. The actual amount of bio-gas directed to the flare, if the Permittee estimates emissions from the bio-methanator for only bio-gas actually directed to the flare (rather than assuming that all bio-gas is flared).

d. Information for periods of time when the flare operated without a flame present in the flare, including amount of biogas exhausted through the flare.

e. Records on at least an annual basis of the VOM, CO and NO_x emissions from the Bio-methanator, with supporting documentation and calculations.

2.10.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the bio-methanator as follows. These notifications shall include the information specified by Condition 3.5.

i. If the bio-methanator is damaged so there is a deviation from an applicable requirements that is not repaired or otherwise corrected within 12 hours, the Permittee shall then immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.10.11 Compliance Procedures

Compliance with Condition 2.10.6 shall be based on the records required by Condition 2.10.9 and the use of appropriate emission factors.

2.11 Cooling Tower

2.11.1 Description

A non-contact cooling tower is used to support the heat exchangers used to cool process streams and to condense surplus steam being returned to boilers.

2.11.2 List of Emission Units and Pollution Control Measures

Emission Unit Description	Control Measures
Cooling Tower	Drift Eliminator

2.11.3 Applicable Regulations

Affected process emission units are subject to 35 IAC 212.321. (Refer to Condition 2.4.2(b).)

2.11.4 Non-Applicability of Regulations of Concern

None

2.11.5 Operational and Production Limits and Work Practices

None

2.11.6 Emission Limitations

Emissions of PM from the cooling tower shall not exceed 3.5 lb/hr and 15.33 tons per year.

2.11.7 Testing Requirements

None

2.11.8 Monitoring Requirement

None

2.11.9 Recordkeeping Requirements

The Permittee shall maintain records of the following information for the cooling tower:

a. The design data for the cooling tower, including water circulation rate (gal/min) and design loss rate of the drift eliminators (percent).

b. Total dissolved solids concentration of the water circulated in the cooling tower on at least a quarterly basis(ppm).

c. Records on at least an annual basis of the PM emissions from the cooling tower, with supporting documentation and calculations.

2.11.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the cooling tower as follows. These notifications shall include the information specified by Condition 3.5.

i. If the cooling tower is damaged so there is a deviation from an applicable requirements that is not repaired or otherwise corrected within 24 hours, the Permittee shall then immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

2.11.11 Compliance Procedures

Compliance with Condition 2.11.6 shall be based on the records required by Condition 2.11.9 and the use of appropriate emission factors.

2.12 Roadways And Other Sources Of Fugitive Dust

2.12.1 Description

Fugitive dust/particulate matter emissions are generated by vehicle traffic on roadways and parking lots at the plant.

2.12.2 List of Emission Units and Pollution Control Measures

Emission Unit Description	Emission Control Measures
Vehicle Traffic, Paved and Unpaved Plant Roads and Parking Lots	Fugitive Dust Control Program

2.12.3 Applicable Regulations

a. The "affected operations" for the purpose of these unit-specific conditions are the operations described in Condition 2.12.1 and 2.12.2.

b. Visible emissions of fugitive particulate matter from any process, including material handling or storage activity, shall not be present beyond the property line of the source, pursuant to 35 IAC 212.301. (See also Condition 1.4(a).)

2.12.4 Non-Applicability of Regulations of Concern

a. The affected operations are not subject to the requirements of 35 IAC 212.321 ("the process weight rate" rule) because of the disperse nature of these emissions units. [35 IAC 212.323]

2.12.5 Operational and Production Limits and Work Practices

a. The Permittee shall follow good air pollution control practices to minimize nuisance fugitive dust from plant roads, parking areas, and other open areas of the plant. These practices shall provide for pavement on all regularly traveled entrances and exits to the plant and treatment (sweeping, application of water, use of dust suppressant, etc., when necessary) of paved and unpaved roads and areas that are routinely subject to vehicle traffic.

b. i. The Permittee shall carry out control measures for fugitive dust in accordance with a written control program maintained by the Permittee. This program shall set forth the measures being implemented to demonstrate compliance with Conditions 2.12.3, 2.12.5(a) and 2.12.6, to control fugitive dust at each area of the plant with the potential to

generate significant quantities of fugitive dust. This program shall include: (i) A map or diagram showing the location of all fugitive emission units controlled, including the location, identification, length, and width of roadways, and volume and nature of expected traffic or other activity; (ii) estimated dust emissions control technique (e.g., water spray surfactant spray, water flushing, or sweeping); (iii) triggers for additional control, e.g., observation of extended dust plumes following passage of vehicles.

ii. The Permittee shall submit a copy of a revised fugitive dust control program to the Illinois EPA for review within 90 days of a request from the Illinois EPA for a revision to the program to address observed deficiencies in the control program.

2.12.6 Emission Limitations

a. Emissions of PM from the affected operations shall not exceed 3.63 tons per year, as determined by use of appropriate USEPA methodology for estimating emissions of fugitive dust.

2.12.7 Testing Requirements

None

2.12.8 Monitoring Requirement

None

2.12.9 Recordkeeping Requirements

The Permittee shall maintain the following records with respect to the affected operations:

a. A file documenting assumptions about the quantity and nature of vehicle traffic at the plant as related to the grain receipts and loadout of ethanol and feed.

b. Records documenting implementation of the fugitive dust control program, including:

i. For each dust control treatment of a roadway: the name and location of the roadway controlled, the type of treatment, identification of each truck used, application rate of water or other dust suppressant material, and total quantity of material applied;

ii. A log recording incidents when control measures were not carried out as scheduled or were not fully implemented and incidents when additional control measures were carried out, with description of each such incident and explanation. This log shall address any adjustments to the scheduling of control measures made by the Permittee due to weather conditions that either acted to reduce or increase the level of potential dust, such as precipitation or extended periods of dry weather.

c. Records on at least an annual basis of the PM emissions from the affected operations, with supporting documentation and calculations.

2.12.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for affected operations as follows. These notifications shall include the information specified by Condition 3.2.

i. If there is an exceedance of Condition 2.12.3(b) that lasts longer than one hour, the Permittee shall immediately notify the Illinois EPA.

ii. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

b. With the Quarterly Emission Report, the Permittee shall submit the following information to the Illinois EPA:

Dates when control measures otherwise required by the dust control program were not carried out with explanation.

2.12.11 Compliance Procedures

Compliance with Condition 2.12.6 shall be based on the records required by Condition 2.12.9 and the use of appropriate emission factors.

Section 3: General Conditions

3.1 The Permittee shall maintain records of all public inquiries regarding operations related to emissions, submit these records to the Illinois EPA upon request and provided to the public if requested.

3.2 a. i. The Permittee shall perform emission tests as requested by the Illinois EPA for an emission unit within 45 days of a written request by the Illinois.

ii. Notwithstanding the above, the deadline for emission testing may be extended by the Illinois EPA upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in performing testing.

b. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the USEPA or Illinois EPA. Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Particulate Matter	USEPA Method 5
Volatile Organic Material	USEPA Method 18 and 25/25A*
Carbon Monoxide	USEPA Method 10
Nitrogen Oxides	USEPA Method 19
Opacity	USEPA Method 9
Hazardous Air Pollutants	USEPA Method 18*

* Testing shall also be conducted in accordance with industry-specific guidance from USEPA on testing VOM and HAP emissions at ethanol plants.

c. A written test plan shall be submitted to the Compliance Section of the Division of Air Pollution Control for review at least 45 days prior to the scheduled date of testing. This plan shall describe the specific procedures for testing, including as a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.

iii. The specific determinations of emissions and operation that is intended to be made, including sampling and monitoring locations.

iv. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.

d. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

e. Copies of the Final Reports for these tests shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized but no later than 45 days after completion of sampling. The Final Report shall include as a minimum:

i. A summary of results

ii. General information

iii. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration

f. Copies of emission test reports shall be retained for at least five years after the date that an emission test is superseded by a more recent test.

3.3 Where this permit requires the Permittee to operate or maintain emission units in accordance with written procedures, such procedures may incorporate procedures provided by the equipment supplier.

3.4 Inspection and maintenance logs shall include the following information:

a. Identification of equipment, with date, time, responsible party and description of activity.

b. Description of any corrective actions or preventative measures taken as result of inspection.

3.5 Reporting of Deviations

a. Reports of deviations shall include the following information:

i. Identify the deviation, with date, time, duration and description.

ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.

iii. Describe the probable cause of such deviations and any corrective actions or preventive measures taken.

b. Quarterly compliance report shall be submitted no later than 45 days after the preceding calendar quarter. This report shall also provide a listing of all deviations for which immediate or 30-day reporting was required, but need not include copies of the previously submitted information.

c. If there are no deviations during the calendar quarter, the Permittee shall still submit a compliance report, which report shall state that no deviations occurred during the reporting period.

If you have any questions on this permit, please call Minesh Patel at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:MVP:psj

cc: Region 2

ATTACHMENT A

Listing of Identified Emission Units and Process Equipment

Operation	Emission Unit/Process Equipment	Emission Control Equipment
Boiler	Boiler 1	Low NO_x Burners
	Boiler 2	Low NO_x Burners
Turbine	Turbine	Low NO_x Burners
Corn Receiving	Grain Receiving Dump Pit	----
Grain Handling and Processing	Grain Dump Pit Discharge Conveyor	Spot Filter baghouse (FX-150)
	Scalper Discharge Bucket Elevator	Spot Filter baghouse (FX-157)
	Grind Bin Bucket Elevator	Spot Filter baghouse (FX-147)
	Grain cleaning scalper	Spot Filter baghouse (FX-153)
Grain Milling	Hammermill Discharge Conveyors	Spot Filter baghouses (FX-190 and FX-195)
Cooking, Liquefaction, Fermentation	CIP Caustic Screen	----
	Liquefaction Tanks	----
	Slurry Tank	Distillation Scrubber (CE0003) or Afterburner
	Ethanol Regeneration Tank	
	Yeast Tank	
	Fermentation Tanks	Fermentation Scrubber (CE0002)
	Beer Well	
Distillation	Beer Column	Distillation Scrubber (CE0003) or Afterburner
	Side Stripper	
	Rectifier Column	
	190 Proof Condenser	
	190 Proof Reflux Tank	
	Molecular Sieve	
	Mash Screen	
Solids Separation	Centrifuges	Afterburner
	Evaporators	
	Syrup Tank	
	Thin Stillage Tank	
	Whole Stillage Tank	
	Bio-Methanator Feed Tank	
Feed Drying and Cooling	Dryer	Cyclones, Venturi Scrubber, Afterburner
	Cooler (Baghouse)	
Feed Storage and Loadout	Dry Feed Storage	
	Dry Feed Transfer to Loadout	Spot Filter baghouse (FX-830)
	Dry Feed Loadout	
	Wet Feed Storage and Loadout	
Main Storage Tanks	190 Proof Day Tank	Internal Floating Roof with Primary and Secondary Seals

Operation	Emission Unit/Process Equipment	Emission Control Equipment
	200 Proof Day Tank	Internal Floating Roof with Primary and Secondary Seals
	Denaturant Tank	Internal Floating Roof with Primary and Secondary Seals
	Denatured Ethanol Tank	Internal Floating Roof with Primary and Secondary Seals
Ethanol Loadout	Truck Loading Rack	Flare
Process Components (Valves, Flanges, Pumps, Seals, etc.)	Processing of Organic Material through the Plant's Piping System	Leak Detection and Repair Program
Miscellaneous Processes	Bio-Methanator	Flare
	Cooling Tower	Drift Eliminator
Fugitive Dust	Plant Roads and Parking Areas	Paving and Sweeping

TABLE I-A

Annual Emission Limitations (Tons/Year)

Emission Unit(s)	NO_x	CO	VOM	PM/PM_{10}	SO_2	Acet.	Other HAP	Total HAP	Ind. HAP
Boiler 1	12.78	7.67	0.73	3.68	0.16	0.025	0.11	0.135	0.073
Boiler 2	12.78	7.67	0.73	3.68	0.16	0.025	0.11	0.135	0.073
Turbine	25.84	30.05	0.88	0.48	0.79	0.05	0.13	0.18	0.088
Grain Receiving & Handling	---	---	---	10.31	---	---	---	---	---
Grain Cleaning & Milling	---	---	---	3.02	---	---	---	---	---
Fermentation (Scrubber)	---	---	40.50	0.44	---	3.16	0.32	3.48	0.21
Distillation (Scrubber)	---	---	9.58	0.44	---	3.64	0.36	4.00	0.24
Fermentation/Distillation (Other)	---	---	4.40	0.44	---	0.10	0.66	0.76	0.44
Centrifuges	---	---	2.10	---	---	0.20	---	0.20	---
Feed Dryer/Cooler/Afterburner	35.04	41.61	17.52	32.85	32.85	2.20	9.65	11.85	*6.35*
Dry Feed Loadout	---	---	---	6.62	---	---	---	---	---
Wet Cake Transfer & Loadout	---	---	10.00	---	---	0.20	1.50	1.7	1.00
Ethanol & Denaturant Tanks	---	---	2.25	---	---	0.10	0.34	0.44	0.225
Ethanol Loadout Rack	1.79	0.72	2.13	---	---	0.10	0.32	0.42	0.213
Component Leaks	---	---	5.00	---	---	0.05	0.75	0.80	0.50
Bio-Methanator	0.53	2.93	1.11	1.00	1.00	0.05	0.17	0.22	0.111
Cooling Tower	---	---	---	15.33	---	---	---	---	---
Plant Roads / Parking Areas	---	---	---	3.63	---	---	---	---	---
Totals	89.0	91.0	97.0	82.0	35.0	9.90	14.42	24.32	9.523

TABLE I-B

Annual Emission Limitations (Tons/Year)

Emission Unit(s)	NO_x	CO	VOM	PM/PM_{10}	SO_2	Acet.	Other HAP	Total HAP	Ind. HAP
Boiler 1	12.78	7.67	0.73	3.68	0.16	0.025	0.11	0.135	0.073
Boiler 2	12.78	7.67	0.73	3.68	0.16	0.025	0.11	0.135	0.073
Turbine	25.84	30.05	0.88	0.48	0.79	0.05	0.13	0.18	0.088
Grain Receiving & Handling	---	---	---	10.31	---	---	---	---	---
Grain Cleaning & Hammermill	---	---	---	3.02	---	---	---	---	---
Fermentation (Scrubber)	---	---	40.50	---	---	3.16	0.32	3.48	*0.21*
Distillation (Scrubber)	---	---	9.58	---	---	3.64	0.36	4.00	*0.24*
Fermentation (Other units)	---	---	4.40	---	---	0.10	0.66	0.76	*0.44*
Centrifuges	---	---	2.10	---	---	0.20	---	0.2	---
Feed Dryer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dry Feed Loadout	---	---	---	6.62	---	----	---	---	---
Wet Cake Transfer Operation	---	---	10.00	---	---	0.20	1.5	1.7	1.00
Ethanol & Denaturant St. Tanks	---	---	2.25	---	---	0.10	0.34	0.44	0.225
Ethanol Loading Rack	1.79	0.72	2.13	---	---	0.10	0.32	0.42	0.213
Component Leaks	---	---	5.00	---	---	0.05	0.75	0.80	0.5
Bio-Methanator	0.53	2.93	1.11	1.00	1.00	0.05	0.17	0.22	0.111
Cooling Tower	---	---	---	15.33	---	---	---	---	---
Plant Roads / Parking Areas	---	---	---	3.63	---	---	---	---	---
Total	54.0	49.0	80.0	48.0	2.11	7.70	4.8	12.5	3.2

MVP:psj

Illinois Environmental Protection Agency
Bureau of Air, Permit Section
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Project Summary for Construction and Operating Permit Applications from Adkins Energy, LLC for Its Fuel Ethanol Plant in Lena, Illinois

Site Identification No.: 177802AAA
Application No.: 03060057, 03070046, and 03040053
Date Received: June 24, July 24, and April 17, 2003

Schedule
Public Comment Period Begins: November 3, 2003
Public Hearing: December 18, 2003
Public Comment Period Closes: January 17, 2003

Illinois EPA Contacts
Permit Analyst: Minesh Patel
Community Relations Coordinator: Brad Frost

I. INTRODUCTION

Adkins Energy, LLC (Adkins) operates a new fuel ethanol plant in Lena, in Stephenson County. The plant has the nominal capacity to produce 116,400 gallons of fuel ethanol per day, equivalent to 42.5 million gallons of per year. Adkins began operation of the plant in August 2002.

Adkins has now submitted applications for two construction permits for changes to the plant: 1) Changes to the feed drying system, including installation of an afterburner to control emissions, and 2) Installation of a permanent flare to control the emissions from the loadout of ethanol. Adkins has also applied for a Federally Enforceable State Operating Permit (FESOP) for the operation of this new plant. The plant requires these air pollution control permits from the Illinois EPA because of the plant is a source of emissions.

II. PLANT DESCRIPTION

This plant produces fuel ethanol from corn by fermentation. The fuel ethanol is sold to be blended with gasoline. The plant also produces cattle feed, as a byproduct from the fermentation process.

There are a number of distinct operations at the plant. First, cleaned corn is prepared for fermentation, by grinding, mixing with water, and cooking with enzymes that convert the starch in the corn into sugar. The resulting corn mash is then sent to one of three fermentation tanks for batch fermentation. Fabric filters are used to control the particulate matter (PM) emissions associated with handling of the dry corn.

Yeast is added to the corn mash in the fermentation tank. The yeast breaks down the sugar in the corn mash into alcohols, primarily ethanol, and gaseous carbon dioxide (CO_2). The CO_2 generated by the fermentation process is scrubbed with water to collect ethanol and other volatile organic material (VOM) entrained in the CO_2.

When fermentation is complete, the ethanol-laden beer is processed to separate the ethanol, water, and remaining solids. The ethanol is separated from the beer in a two-step distillation process to produce 190 proof ethanol (97.5 percent ethanol). The ethanol is further purified in a molecular sieve to 200 proof (100 percent ethanol). The VOM emissions from the distillation process are currently scrubbed with a water scrubber.

The 200 proof ethanol is denatured with gasoline and stored pending load out to customers. The emissions of VOM from the storage of product ethanol are minimized by use of floating roof tanks, which prevent loss of vapor to the atmosphere. The VOM emissions from load out of ethanol, which result from VOM laden vapors being displaced from the tank truck, are controlled by burning the vapors in a flare.

The solids-rich material recovered from the bottom of the beer still (the first still in the distillation process) is the source of the byproduct feed produced by the plant. The material is mechanically processed by centrifuges to remove water. This produces a wet feed material, also known as "wet cake," which still contains about 67 percent water. The wet cake can be sold for use directly as cattle feed.

Because wet cake has a very limited shelf life, it is desirable to further dry the wet cake at the plant in a heated feed dryer. This produces a feed material known as dried distillers grain with solubles (DDGS), which only contains about 10 percent water. This dried feed material can be shipped long distances and stored for an extended period of time. This plant was built with a direct-fired natural gas feed dryer. The further drying of wet cake in such a dryer is a potential source of emissions of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), VOM and PM.

In March 2003, Adkins ceased operating this dryer and currently all feed produced by the plant is shipped as wet cake. This is due to operational and compliance problems experienced with the original dryer, which was not equipped with an afterburner or combustion-type control device. Instead, the original dryer was only equipped with cyclones and a scrubber. To provide further control of emissions of VOM, CO and PM, the dryer relied upon recirculation of a portion of the exhaust back into the burner and furnace sections at the front of the dryer.

Also present at the plant are two boilers and a turbine. These supply steam and some of the electricity to power the plant. Emissions of NO_x, CO, PM and VOM are minimized by the use of natural gas as the only fuel and the design of the burners.

III. DESCRIPTION OF APPLICATIONS

Adkins has proposed changes to its feed dryer system to allow it to resume production of dry feed. These changes include installation of a natural gas fired afterburner to control CO and VOM emissions from the feed drying operation. In addition, this new afterburner would be used as the principle control device for the distillation process, instead of the existing scrubber, which would be retained for periods when the afterburner is not available. The new afterburner would also be used to control VOM emissions from the centrifuges.

The afterburner would be required to achieve at least 90 and 95 percent control for emissions of CO and VOM, respectively. Alternatively, CO and VOM emissions must be reduced to no more than 100 and 10 ppm, respectively. The afterburner would be a Regenerative Thermal Oxidizer (RTO). In an RTO, heat recovered from the afterburner exhaust gases is used to preheat the incoming streams vented from emission units, which reduces fuel consumption.

In its second construction permit application, Adkins addresses installation of a permanent flare to control VOM emission from the ethanol loadout operation. Adkins is currently using a portable flare for the ethanol loadout operation. The proposed permanent flare would achieve the same level of VOM destruction efficiency, nominally 98 percent, but would be enclosed.

Lastly, Adkins has applied for an operating permit to address the ongoing operation of the plant. It has requested a Federally Enforceable State Operating Permit (FESOP), which would be enforceable both at the state level and at the federal level by USEPA.

IV. CONSENT ORDER

Because of the compliance problems experienced with the plant, especially with the original dryer, Adkins and the Illinois Attorney General's Office entered into an Agreed Order For Interim Injunctive Relief (Order), on June 10, 2003.

The Order requires Adkins to submit a complete and accurate construction permit application for a new or reconfigured feed dryer with combustion-type air pollution control equipment to control VOM, CO, and PM emissions. Adkins' construction permit application for changes to the feed dryer system responds to this requirement.

The Order also requires Adkins to take certain actions to come into full compliance with air pollution control regulations. In particular, the Order requires Adkins to apply for and obtain an operating permit from the Illinois EPA for the plant. This permit is needed to resolve the status of the plant under the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21. The potential emissions from the plant, as limited by the proposed FESOP, would be below the major source thresholds of PSD, i.e., less than 100 tons per year of each criteria pollutant, so that the plant would not be considered a major source. For this purpose, the FESOP would limit the plant under its current operating configuration, without an operating feed dryer or afterburner. It would also limit the plant after changes are made to the dryer system and the required afterburner is installed.

The proposed FESOP also includes other emission control requirements for the plant established by the Order, including requirements for leaking components, the wet cake operation and emissions of Hazardous Air Pollutants (HAPs). With respect to HAPs, the proposed FESOP would limit emissions from the plant so that it would not be a major source for HAPs. These limits would address certain compounds present in the VOM emissions from the plant that have been designated HAPs, such as acetaldehyde and methanol.

V. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois are subject to the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois. The plant complies with applicable state emission standards (Ill. Adm. Code, Title 35: Environmental Protection, Subtitle B: Air Pollution, Chapter I, Subchapter c).

Certain storage tanks at the plant and the boilers and turbine are also subject to federal New Source Performance Standards (NSPS) at 40 CFR 60 Subpart Kb, Subpart Dc, and Subpart GG for boilers for the tanks, boilers, and turbine, respectively. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement. Inspection and testing of emissions from these units shows that they comply with the applicable standards.

VI. PROPOSED PERMIT CONDITIONS

The conditions of permits identify the air pollution control regulations that apply to emission units and establish limitations and compliance procedures to facilitate compliance with those regulations. These compliance procedures include provisions for testing, monitoring and recordkeeping. They may also include measures that must be used as good air pollution control practice for effective control of emissions. Construction permits address proposed emission units so that they are based on design information and include provisions for shakedown and initial compliance testing of the units. Operating permits generally address existing emission units, so they can rely on actual emission data and the actual operating parameters of the control equipment for the emission units. As operating permits address proposed emission units, they also must rely on design information for the units.

The draft permits includes enforceable limits on emissions and operation for the equipment to assure that plant remains below the levels at which it would be considered major for PSD and HAPs. Actual annual emissions of the plant would be less than the permitted emissions of the plant as established by permit limitations to the extent that control equipment performs better than required and the plant operates below its capacity. In addition to limiting annual emissions, the permits include limits on hourly emissions and annual operating limitations for grain receipts and ethanol production. The hourly emission limits are based on achievement of emission rates based on results from emission testing with appropriate safety margins or otherwise on maximum emission as specified by the manufacturer of the equipment or as determined with standard emissions factors. The operating limitations reflect the design capacity of the plant as identified by Adkins and are not believed to restrict the plant to a level of operation below its capacity.

The permit also establishes appropriate compliance procedures for the ongoing operation of the plant, including requirements for monitoring, recordkeeping, and reporting. For the new dryer, detailed provisions are included in the construction permit specifying the emission testing that must be performed. For existing units, provisions are also included for further emission testing to be performed if requested by the Illinois EPA to verify compliance. These measures are being imposed to assure that the emissions of the plant are appropriately tracked to confirm compliance with both the short-term and annual emission limits established for individual emission units.

VII. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that the proposed permits would meet applicable state and federal air pollution control requirements. The Illinois EPA is therefore proposing to issue these permits.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions of the draft permits.

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